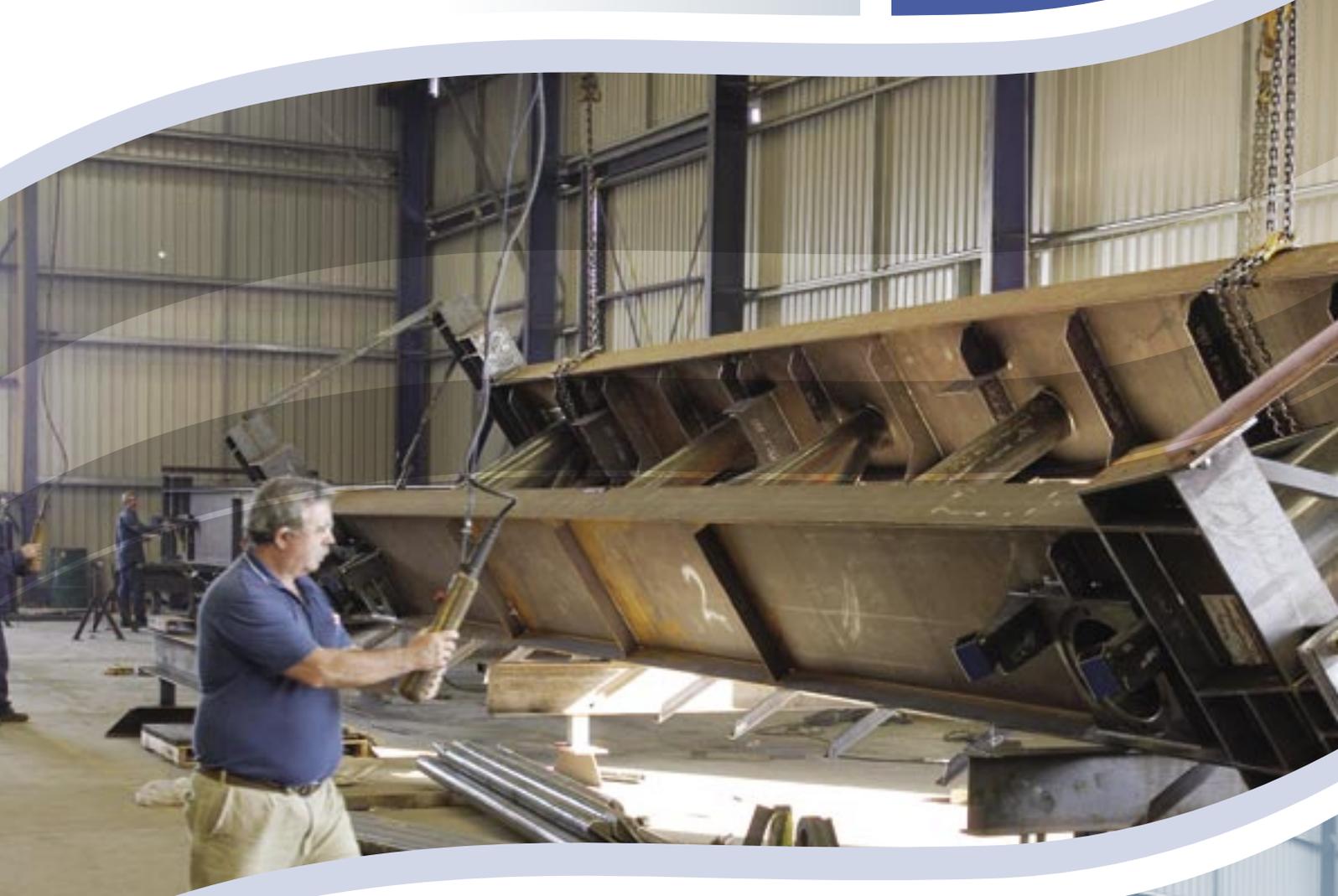


Customer: Cays Engineering
Location: Mandurah, WA
Project: Shuttle conveyor fabrication
Date: January 2006



STEEL SHUTTLES BOUND FOR DAMPIER PORT

Leading WA fabricator, Cays Engineering has successfully completed fabrication of nine massive shuttle conveyors for the \$685 million Hamersley Iron Dampier port upgrade.

The company was originally contracted to fabricate five of the shuttle conveyors, but its success led to orders for a further four. The delivery of the shuttles has been staged over several months, with the final shuttle to be delivered in January 2006.

The port expansion will increase the capacity of the Dampier facility from 74 million tonnes per annum to 116 million tonnes per annum. The first stage of the project began in January 2004 and works include a new rotary car dumper and rail track, relocation and modifications to stockpiles, installation of a new ship loader, extensions to the existing wharf, and the creation of a new sea wall.





"We can be assured of the quality and getting the tolerance that we need"

Angus Youngson, Managing Director, Cays Engineering



Above: Each shuttle involved very exacting tolerances, with accuracy confirmed by surveying.

Above right: Angus Youngson, Cays Engineering Managing Director.

Established in 1956, Cays Engineering specialises in heavy plate and structural fabrication, quenched and tempered steelwork, pipe work, pressure vessels, fabrication of mechanical items, general engineering, shutdown and maintenance work.

The business has grown steadily over the years, experiencing rapid growth in the last fifteen years. It has approximately 65 employees.

"We have a very well established reputation in the mining industry for medium to heavy plate work, such as rock breakers, conveyors and crushers," says Angus Youngson, Managing Director of Cays Engineering. "This constitutes about 50 to 60% of our workload. The remainder of our work lies in medium to heavy structural steel fabrication for the commercial and industrial market, for clients such as Multiplex.

"Our primary motivation is to have honest and open relationships with our customers – and to produce quality product on budget and on time to ensure repeat business."

Cays Engineering is fabricating the shuttle conveyors for Monadelphous. Measuring between 12 to 17 metres long and weighing up to 18 tonnes, the shuttles are similar to railway carriages – consisting of large frames about 17 metres long and 3 metres wide.

"Fit out of the shuttles includes large shafts, wheel bearings, and wheel assemblies," explains Angus. "The whole thing has to be machined and surveyed for accuracy. The accuracy of fabrication and the quality of the welding all has to be perfect."

The shuttles were fabricated in Cays Engineering's 3000 sqm workshop in Mandurah. The facility features eight overhead gantry cranes and has a 40 tonne lifting capacity.

"The job has been very successful," says Angus. "We worked with very exacting tolerances as far as fabrication is concerned."



About 12 to 18 tonnes of 300 grade XLERPLATE® steel was used in each shuttle. "Wherever possible, we try and use local steel," says Angus. "We can be assured of the quality and getting the tolerance that we need. The client expects us to use local material wherever possible and we are also required to produce test certifications for it."

The shuttle fabrication process was complex, requiring quality checks and surveying at numerous stages of the job, says Angus. "When the XLERPLATE® steel was received, it was identified with the project and job number and then subjected to an initial quality check. The material was then issued on to the floor for processing, cutting and profiling.

Above: The shuttles were fabricated component by component before final assembly.

“Our key objective is that we deliver on time and on budget, so we need to have good working relationships with our suppliers”

Angus Youngson



“At that stage, multiple checking procedures were carried out to ensure dimensional accuracy, weld preps and so on. We tried to produce the structure in as small components as possible, prior to assembling the whole unit.

“Quite a number of the parts required machining. We pre-machined components, assembled them, and surveyed the critical dimension, to make sure everything was 100% spot on. Once we were satisfied of its quality, we proceeded with the final weld out of the product, paying special attention to distortion. This stage required very careful welding in specific sequences, to minimise any potential for stress or distortion in the product.

“We then re-surveyed the product to ensure tolerances were correct and carried out an NDT weld inspection.

“The unit was then dispatched to the paintyard for sandblasting and painting. In the meantime, we machined the large shafts of 350 mm diameter and 1.8 tonnes each. Once the unit returned from the paintyard, the final fitout was done – the shafts, bearings, pulleys and wheels were fitted, and an onboard lubrication system was installed.

“Finally, a special cradle was arranged to support the pulleys and wheel bearings – to stop any damage to the bearings in transport. The shuttles were then transported to site by road.”

As the shuttles are expected to have a 20 year life span, it’s essential that they are built to the highest and most durable standard. Angus says that a good supplier is vital in delivering the final product.

“Our key objective is that we deliver on time and on budget, so we need to have good working relationships with our suppliers to ensure that we can get materials pre-ordered, held in stock, processed and delivered to our required schedule,” he says. “This is critical to ensure that we have a smooth flow of work through the workshop.”

For more information
on XLERPLATE® steel call
1800 800 798
or visit
www.xlerplate.com.au

